Optimization of the Continuous Process for Biodiesel Production

The Alabama Department of Economic and Community Affairs is partnering with Alabama Biodiesel to increase the market penetration of biodiesel by optimizing a process that will lead to lower production costs and consumer prices. This will be accomplished by providing critical technical evaluation and refinement to a large capacity continuous production process for biodiesel. With this process, Alabama Biodiesel expects to achieve a significant economy of scale that is not possible with the currently prevalent batch process. The plant will also purify the glycerin by-product to be sold as a secondary revenue stream. This will significantly aid in reducing the overall price per gallon of biodiesel.

The plant site is a reclaimed Brownfield located in the Black Belt Region of Alabama. The facility contains 1.5 million gallons of liquid storage, 21 reactors, and two rail spurs with pumping stations to load tanker cars. The plant is 12 miles from a major Interstate, and is located on the Black Warrior River, which has an active and underutilized barge system.

Initially, a pilot-scale production facility will be built at the biorefinery that will produce up to 4 million gallons of ASTM grade biodiesel per year. Each stage of the production process will be analyzed and optimized in this pilot phase for transition to a continuous production process. The fuel will then be used for market penetration and economic feasibility studies in public and commercial systems (e.g. transportation and power generators).

It is essential to our domestic security that we reduce our dependence on foreign oil. Biodiesel production at the Alabama Biodiesel plant is expected to begin at four million gallons and reach greater than 40 million gallons annually by 2007. The continuous process plant has the potential of volumes greater than 100 million gallons annually. Assuming that 57% of the diesel fuel in the state is from foreign sources, this plant will supplant 2.3 million gallons within the first 18 months and an increasing amount every year thereafter.

The Central Alabama Clean Cities Coalition has assisted Alabama Biodiesel by visiting and talking with over fifty organizations representing business, industry, government and others who have expressed a definite interest in purchasing and using biodiesel once the supply is readily available.

The project will aid rural development in the Black Belt Region by ultimately creating an estimated 45-60 new jobs, many of which will be “white collar” and high-tech positions. Also, area farmers will be encouraged to grow biodiesel feedstocks, which in addition to reducing transportation costs, will give farmers increased income and greater flexibility in crop rotation.